

Abstract

A DC motor includes a stator of magnets surrounding a rotor containing coils of wire surrounding cores. Brushes serve to repeatedly start and interrupt the supply of current to the individual coils via respective commutator segments of the rotor in-order to rotate the rotor. Each pole includes a reduced magnetic flux density area and an increased magnetic flux density area. The potential discharge between the commutator segments and the brushes supplying current to the individual coils is reduced by altering the magnetic forces of the poles within the reduced magnetic flux density area and the increased magnetic flux density area. The magnetic forces of the poles are altered by using either separate magnets of varying levels of strength or by altering the gap between the cores and the poles.